

Quadratics: Profit and Income

$$\text{Income} = (\text{tickets sold}) * (\text{ticket price})$$

$$\text{Profit} = \text{Income} - \text{Expenses}$$

Example: Suppose a group wanted to determine the income and profit of their fundraiser. Their treasurer found the following info would help.

- Tickets sold is represented by the equation $s = 3500 - 275x$ where s is the tickets sold x represents the ticket price.
- The expenses for the fundraiser will total \$4500.

a. What equation will determine how income (I) as a function of ticket price (x)?

$$3500x - 275x^2 = I$$

$$I = (3500 - 275x)x$$

b. What equation will give profit (P) as a function of ticket price (x)?

$$P = -275x^2 + 3500x - 4500$$

Break even or break even point: when the profit is equal to zero!

c. Write the equation and solve for when the profit will break even.

$$0 = -275x^2 + 3500x - 4500$$

$y_1 = 0$
 $y_2 = -275x^2 + 3500x - 4500$

Find the intersection on calc

$$x \approx \$1.45 \text{ and } \$11.28$$

